GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code: 3170622   **Date: 01-06-2024**

Subject Name: Precast Construction

Time: 02:30 PM TO 05:00 PM   **Total Marks:70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	(a)	What do you understand by erection stresses? How can we control them.	03
	(b)	Write short note on modular co-ordination	04
	(c)	Explain the types of precast concrete connections. Discuss its design requirements and the manufacturing and construction considerations. Give the provisions for non-structural fastenings	07
Q.2	(a)	Explain equivalent design loads.	03
	(b)	Describe mould tolerance of precast elements.	04
	(c)	Explain importance of structural integrity and precautions to provide the same in Precast elements.	07
		OR	
	(c)	Explain installation of precast columns.	07
Q.3	(a)	Explain the working procedure of vacuum lifting pads for prefabricated elements.	07
	(b)	Explain precast concrete flooring.	07
		OR	
Q.3	(a)	List the requirements of bearing length for floors as per IS 11447.	03
	(b)	What are the criteria for anchorage length for reinforcement as per IS 11447?	04
	(c)	Describe the requirements of a structural joint in precast construction	07
Q.4	(a)	Explain the advantages and disadvantages of cross wall construction.	07
	(b)	Describe step by step method for precast Frame analysis.	07
		OR	
Q.4	(a)	Describe expansion joints in precast construction	07
	(b)	Discuss the plant process for preparation of precast elements.	07
Q.5	(a)	Difference between Precast and Other forms of Concrete construction.	03
	(b)	Explain characteristic requirements of materials for precast construction	04
	(c)	Design an RCC precast column for an axial load of 650 kN. Use M – 20 grade concrete and Fe – 500 steel. Use the equation for axially loaded short column. $Pu = 0.4*fck*Ac + 0.87*fy*Asc$.	07
		OR	
Q.5	(a)	Discuss various steps for erection of Precast Elements	03
	(b)	Explain advantages and disadvantages of Precast Construction	04
	(c)	Describe the process to achieve early strength of Precast Elements	07

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